FAP-1 (PTPN13) has several alternatively-spliced forms that are identical to PTP-BAS/hPTP1E/PTPL1, (Maekawa, et al. 1994; Banville, et al. 1994; Saras, et al. 1994) and contains a membrane-binding region similar to those found in the cytoskeleton-associated proteins, ezrin, (Gould et al. 1989) radixin (Funayama et al. 1991) moesin (Lankes, et al. 1991), neurofibromatosis type II gene product (NFII) (Rouleau, et al. 1993), and protein 4.1 (Conboy, et al. 1991), as well as in the PTPases PTPH1 (Yang, et al. 1991), PTP-MEG (Gu, et al. 1991), and PTPD1 (Vogel, et al. 1993). FAP-1 intriguingly contains six GLGF (PDZ/DHR) repeats (Sequence I.D. No. 2) that are thought to mediate intra-and inter-molecular interactions among protein domains. The third GLGF repeat (Sequence I.D. No. 2) of FAP-1 was first identified as a domain showing the specific interaction with the C-terminus of Fas receptor (Sato, et al. 1995). This suggests that the GLGF domain (Sequence I.D. No. 2) may play an important role in targeting proteins to the submembranous cytoskeleton and/or in regulating biochemical activity. GLGF repeats have been previously found in guanylate kinases, as well as in the rat post-synaptic density protein (PSD-95)(Cho, et al. 1992), which is a homolog of the Drosophila tumor suppressor protein, lethal-(1)-disc-large-1 [[*dlg-1*]] (*dlg-1*) (Woods, et al 1991; Kitamura, et al. 1994). These repeats may mediate homo- and hetero-dimerization, which could potentially influence PTPase activity, binding to Fas, and/or interactions of FAP-1 with other signal transduction proteins. Recently, it has also been reported that the different PDZ domains of proteins interact with the C-terminus of ion channels and other proteins (Figure 1) (TABLE 1)(Kornau, et al. 1995; Kim, et al. 1995; Matsumine, et al. 1996).

Figure 1. Diagram of Fas-associated phosphatase-1 protein, showing the six GLGF (PDZ/DHR) domain repeats (Sequence I.D. No. 2); comparison of similar membrane binding sites with other proteins and proteins that contain GLGF (PDZ/DHR) repeats (Sequence I.D. No. 2).

Additional variations to the embodiments described herein may be apparent to one of ordinary skill in the art from reading pending U.S. patent applications Serial Nos. 08/681,219 (filed July 22, 1996) and 09/230,111 (filed May 17, 1999). The contents of U.S. Serial Nos. 08/681,219 and 09/230,111 are hereby incorporated by reference herein.

METHOD OF PREPARING A PROTEIN ARRAY BASED ON BIOCHEMICAL PROTEIN-PROTEIN INTERACTION

ABSTRACT OF THE DISCLOSURE

A method of preparing a protein array based on biochemical protein-protein interaction is provided. An array of a first protein which [comprises] includes a PDZ domain is deposited on a substrate. A second protein, which [comprises] includes an amino acid sequence (S/T)-X-(V/I/L)-COOH (each hyphen represents a peptide bond, each parenthesis encloses amino acids which are alternatives to one other, each slash within such parentheses separates the alternative amino acids, and the X represents any amino acid which is selected from the group comprising the twenty naturally occurring amino acids), is applied to the first protein array. The amino acid sequence (S/T)-X-(V/I/L)-COOH of the second protein is bound to the PDZ domain of the first protein.